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Public Attitudes Towards Agricultural Biotechnology in Australia

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Report Highlights:

The Australian Government recently released the results of research on community attitudes towards biotechnology. This report contains the results of that research relating to agriculture, food and environmental applications.

Background

In 2009, the Department of Innovation, Industry, Science and Research (DIISR) commissioned research on community attitudes to biotechnology the results of which were published at the end of 2010. Previous surveys had been conducted every two years from 1999, to determine public attitudes towards biotechnology and biotechnology applications in Australia. This survey was conducted between December 2009 and June 2010. The information below is taken from the results of the survey relating to food, agriculture and environmental applications only. The full survey report, along with the results from previous surveys in 2005 and 2007, is available on the [DIISR website](#).

Key findings

The Australian public has continued to strongly support biotechnologies that provide health or environmental benefits, but their support for genetically modified (GM) foods has dropped a little since 2007.

Biotechnologies of key interest to the public include genetic modification (GM), cloning, stem cell research and using organisms to clean up pollution.

GM food continues to be one of the least well supported biotechnologies, although the public perceive the benefits (70%) still outweigh the risks (48%). This is a drop from 2007 in benefits (77%) and risks (54%), yet still much higher than the 2005 figure of perceived benefits (64%) but lower than the 2005 figure of perceived risk at 71%.

In 2009-10, GM food is more highly supported than foods containing preservatives and foods grown with pesticides. While 67% per cent of the public say that GM foods are acceptable, half of those opposed would change that position if there was long-term evidence of no harm being caused. About 45% per cent of those opposed to GM foods would change their position if labeling explained what ingredients had been modified and why. This support varies depending on the amount of GM in the food, why the modification was made and whether the food was a fruit and vegetable or other crop.

Other key findings include an increasing public trust in Australian regulators and a drop in perceived value of using biotechnologies to address climate change and to produce biofuels. Overall, support for health and medical applications of biotechnology was higher than support for applications in food or agriculture.

Food and agriculture applications

Overall support for applications of biotechnology to food and agriculture was lower than support for applications in health and medicine. In addition, overall support for genetic modification and other biotechnologies in food and agriculture was significantly lower in 2010 than in 2007. Support was significantly greater among males, and among those who are more excited than concerned by new technologies (technophiles).

Overall support among those who agreed that more natural ways of farming should be used was significantly lower, as it was for those who agreed that 'technological change happens too fast for me to keep up with it'.

Attitudes to biotechnology in food and agriculture

Attitudinal statements relating to the use of biotechnology in food and agriculture revealed that Australians hold very mixed feelings on the issue. While the majority of participants (66%) expressed agreement that more natural ways of farming should be used, the majority (53%) disagreed with the statement 'research and development into the genetic modification of crops should be stopped', with more than a quarter (30%) disagreeing strongly.

In addition, despite widespread cynicism about the objectives of genetic modification in agriculture (49% agreed that it is mostly for the benefit of commercial companies), more people disagreed (42%) than agreed (26%) that commercial use of genetic modification should be stopped.

Opinion was also divided over whether genetic modification should be accepted or rejected based on perceived risks to economic competitiveness – while 46% agreed that it should be rejected if it reduced economic competitiveness, 36% agreed that some degree of risk is acceptable from genetic modification, if it enhances economic competitiveness.

Acceptability of genetically modified food crops under certain conditions

Those survey participants who indicated that genetically modified food crops were 'unacceptable' were asked whether or not they would find genetically modified food crops acceptable under certain conditions.

Based on the findings of the preliminary qualitative research, two new conditions were added to the questionnaire in 2010: 'If long-term tests had shown no risks to human health or the environment', and 'If the labeling on the food described what component had been genetically modified, and why'. For these two conditions long-term evidence would convert half the non-acceptors (50%) to acceptance, and descriptive labeling would change the minds of 45%.

Attitudes towards objectives of genetically modifying food crops

Survey participants were presented with a series of objectives of genetically modifying food crops and were asked to rate each objective on a four (4) point value scale: very valuable, somewhat valuable, not very valuable or not at all valuable.

Of the list of ten objectives, the objectives with the highest perceived value were using genetic modification 'to make plants drought resistant' (87% regarded this objective as somewhat valuable or very valuable) and 'to make plants that can grow in salty soils' (82% considered somewhat valuable or very valuable). The objectives that were perceived as the least valuable were making plants herbicide tolerant (64%), making plants mature more quickly (62%), and making food taste better (59%). Since 2007, there has been a shift towards considering 'making food cheaper' and 'making plants herbicide tolerant' as more valuable objectives of genetic modification.

Knowledge of genetically modified cropping in own State

Survey participants were also asked whether or not they thought that commercial genetically modified crops were allowed to be grown in their state of residence, and if so, which crops were grown. A notable proportion (43%) of participants were unable to answer this question, an indication of the low levels of awareness of genetically modified crop growth across Australia. Those who did respond to this question were more likely to believe that genetically modified crops were grown in their own state than not (46% indicated yes and 12% indicated no). Both Western Australians and Victorians were more likely to indicate that genetically modified crops were grown in their state in 2010 than they were in 2007 – a reflection of the recent lifting of moratoria on genetically modified canola in these states (see 'Commercial Cultivation' report referenced at the end of this report).

Across all the large states except Queensland, the most frequently mentioned crop was genetically modified canola (identified by 17% in NSW, 24% VIC, 33% WA, 19% SA). Awareness of genetically modified cotton was highest in NSW and QLD, where it is grown (9% and 14% respectively). Genetically modified wheat was also commonly cited across most states (7% of the total sample cited wheat). Numerous suggestions of corn, soya and other fruits and vegetables suggest there is considerable confusion between the genetically modified food crops available worldwide, and those grown in Australia. Currently only GM cotton, canola & carnations are approved and grown commercially in Australia. The states of South Australia and Tasmania still enforce a moratorium on growing GM food crops in these states.

Support for genetically modified cropping in own state

Just less than one in two participants (49%) indicated that they would be in favor of growing genetically modified crops in their own state, 33% were not in favor, and the remainder (18%) said that they were unsure.

Support for the growth of genetically modified crops was fairly similar across states, ranging from 55% in NSW to 44% in Victoria. There has been no significant change in levels of support since 2007, including those states which have been subject to considerable media coverage of the issue, such as Western Australia and Victoria.

Genetically modified food products

Participants were asked to rate their willingness to eat a variety of different types of food. As anticipated, participants indicated being much more willing to eat organic food than all other types of foods.

Of all the food products related to genetic modification, participants were most willing to eat food with a small amount of genetically modified ingredients, followed by food made from genetically modified food crops, then genetically modified fruit and vegetables and meat and other animal products fed with genetically modified stock feed. Participants were least willing to consume meat and other products from genetically modified animals, cloned animals and from the offspring of cloned animals.

Willingness to eat a number of foods has fallen since 2007. There has been a small but significant decrease in consumer willingness to eat organic food, and larger decreases in consumer willingness to eat genetically modified fruit and vegetables, meat from genetically modified animals, and meat from cloned animals. The greatest decreases observed in consumer willingness to eat foods related not to genetically modified food but to food containing preservatives, and food grown with the use of pesticides.

Awareness and perceptions of genetically modified non-food crops

Participants were asked their views on modifying the genes of plants to produce non-food crops - first in general, and then specifically to produce fuels, to produce clothing and other textiles, and to produce plastics. More than half the research participants (54%) were **aware** of genetic modification of non-food crops; when prompted with the objective of producing fuels, awareness rose to 57%. Awareness of the use of genetically modified non-food crops in the production of both fuels and plastics has risen significantly - from 48% to 57% for fuels, and from 18% to 29% for plastics.

The use of genetically modified crops to produce fuels has seen some significant changes since last wave. Perceived **usefulness** of this application has decreased significantly since 2007 (from 80% to 74%). While there has been no significant change in perceived **risk**, the proportion that view

genetic modification of non-food crops to produce fuels as **acceptable** has decreased significantly (from 78% to 68%).

Environmental applications

Perceptions of environmental objectives of biotechnology

The perceived value of all environmental objectives of biotechnology was very high; more than eight in ten participants indicated that each objective (with the exception of lowering the cost of plastic products) was somewhat or very valuable. Objectives that were seen to be particularly valuable were cleaning up pollution and recycling water more effectively, perceived as somewhat or very valuable by 97% and 96% of participants respectively.

The objectives perceived as least valuable were lowering the cost of petrol (87% consider it somewhat or very valuable), and lowering the cost of plastic products (75% considered it somewhat or very valuable).

For four of the ten objectives, there has been a significant shift towards the less valuable end of the scale: 'to recycle water more efficiently', 'to encourage the development of more environmentally friendly fuels for vehicles', 'to reduce fossil fuel consumption', and 'to help address climate change'. Firstly, the need to recycle water is likely to have decreased in the public consciousness since the drought eased across much of the country. The remaining objectives have clear links to biofuels and to climate change. There appears to be rising skepticism about the value of biofuels – preliminary qualitative research suggested that much of this uncertainty is due to concerns about food crop displacement. This may or not also be linked to rising levels of skepticism about climate change.

Information & Regulation

As found in 2007, unprompted awareness of organizations responsible for providing balanced and factual information about biotechnology was very low; while 5% mentioned the Federal Government, the Department of Innovation, Industry, Science and Research was mentioned by less than 1% of participants. When prompted, 38% of participants had heard of DIISR, a significant increase since 2007, when 32% had heard of Biotechnology Australia.

When asked to name the organization/s responsible for regulating biotechnology in Australia, nearly half the respondents (49%) were unable to provide an answer. The CSIRO was most frequently mentioned (22%), followed by 'federal government' (13%). When prompted, awareness of the Australian Quarantine and Inspection Service (AQIS) far exceeded awareness of other regulatory organizations, at 85%. Awareness of Food Standards Australia and New Zealand (FSANZ) was also fairly high, at 60%. Awareness of Biosecurity Australia has increased significantly from 23% to 34%. Less than a quarter of participants (22%) had heard of the Australian Pesticides and Veterinary Medicines Authority, and only 8% had heard of the Office the Gene Technology Regulator (OGTR).

Survey participants who had heard of each organization were also asked if they would *trust* the organization to regulate genetic modification and other biotechnologies. Compared to last wave, trust in the AVPMA, Biosecurity Australia and AQIS all increased significantly (72% from 56% for APVMA, 67% from 49% for Biosecurity Australia, and 64% from 50% for AQIS).

Key conclusions

Food and agricultural applications

Despite some shift in opinion about genetically modified food crops, there remains widespread acknowledgement of the potential benefits they may provide. Many recognized the value of a number of objectives of genetically modifying crops, particularly the need to adapt to the Australian climate by producing plants that are drought or salinity resistant. In addition, the majority of those who do not accept genetically modified food crops would be swayed by long term tests (50% would change their minds), and labeling describing what component had been genetically modified, and why (45% would be influenced).

As found in previous research, there is widespread overestimation of the number of genetically modified crops grown in Australia, and also of the pervasiveness of genetically modified food products and ingredients throughout the food supply.

Environmental applications

Overall, the idea of using biotechnology to achieve environmental objectives was considered very valuable. Aside from cleaning up pollution, which remains the most valuable objective, several high-ranking environmental objectives have dropped in perceived value since 2007. Each of these changes is likely to be the result of topical issues: the need to recycle water is likely to be less pressing in 2010 than in 2007, following severe rainfall deficiencies in 2006/2. In addition, items related to fuel use and alternative fuels are likely to be less pertinent than they were in 2007, when fuel prices were particularly high. Participants in the preliminary qualitative research also expressed concerns about the possibility of fuel-producing crops displacing valuable food crops.

Finally, there was a drop in the perceived value of using biotechnology to address climate change, which led to it being ranked as one of the least valuable environmental objectives of biotechnology. This may be due in part to rising skepticism about anthropogenic climate change *per se*, rather than doubt in the ability of biotechnology to address the problem.

Information and regulation

While awareness of the organizations responsible for providing information about biotechnology and for its regulation within Australia remains low, there is a high level of trust in the regulatory system, which for a number of organizations has risen since the last wave of this survey.

Full details of this report and those from previous years (2005 & 2007) & other information are available on the Department of Innovation, Industry, Science & Research website at:
<http://www.innovation.gov.au/Industry/Nanotechnology/PublicAwarenessandEngagement/Pages/ResearchandReports.aspx>

Other Biotech Reports from FAS Canberra

[Agricultural Biotechnology Annual 2010](#) (July 2010)

[Commercial Cultivation of GM Canola Approved in 3rd Australian State](#) (January 2010)